

Listing of Claims

1. (Currently Amended) A method for providing simultaneous voice and data (SVD) service in a mobile communication system, comprising:

performing SVD call processing that supports SVD service between mobile terminals and base stations by using a SVD service option; and

providing SVD service by transmitting and receiving voice and packet data simultaneously using at least one radio link protocol (RLP) frame after service negotiation is performed using the SVD service option, wherein providing said SVD service comprises at least one of transforming a packet data frame into a data RLP frame or transforming a voice frame into a voice RLP frame using a frame type field or a control field not used in the at least one data RLP frame.

2. (Previously Presented) The method of claim 1, wherein performing said SVD call processing designates and uses a service reference ID for a new SVD service option which is different from a pre-designated voice service option or packet data service option.

3. (Currently Amended) The method of claim 1, further comprising
implementing in a media access control (MAC) sub-layer a voice RLP module, which assembles voice frames into RLP frames such that voice and packet data can be transmitted and received based on the at least one ~~by means of~~ RLP frame frames.

4. (Currently Amended) A The method of claim 1 providing simultaneous voice and data (SVD) service in a mobile communication system, further comprising
performing SVD call processing that supports SVD service between mobile terminals and base stations by using a SVD service option;
providing SVD service by transmitting and receiving voice and packet data simultaneously using at least one radio link protocol (RLP) frame after service negotiation is performed using the SVD service option, wherein the SVD service is further provided by designating a voice RLP frame type using one or more bit combinations not designated in a frame type field of a data RLP frame, in order to transmit and receive the voice and packet data using the at least one by means of RLP frame frames.

5. (Currently Amended) A The method of claim 1 providing simultaneous voice and data (SVD) service in a mobile communication system, further comprising
performing SVD call processing that supports SVD service between mobile terminals and base stations by using a SVD service option;
providing SVD service by transmitting and receiving voice and packet data simultaneously using at least one radio link protocol (RLP) frame after service negotiation is performed using the SVD service option, wherein the SVD service is further provided by designating a voice RLP frame type using one or more bit combinations not designated in a

control field of a data RLP frame, in order to transmit and receive the voice and packet data using the at least one ~~by means of RLP frame frames~~.

6. (Canceled)

7. (Currently Amended) The method of claim 1 [[6]], wherein the voice frame is transformed into the voice RLP frame by using one or more bit combinations not used in the frame type field of the data RLP frame, if the voice frame is a full rate voice frame.

8. (Currently Amended) The method of claim 7, wherein the voice RLP frame transformed from the full ~~fill~~ rate voice frame comprises 168 bits of voice frame information, and 3 bits of frame type information indicating which frame type is the voice RLP frame type.

9. (Currently Amended) The method of claim 1 [[6]], wherein the voice frame is transformed into the voice RLP frame by using one or more bit combinations not used in the control field of the data RLP frame, if the voice frame is a half rate voice frame or a voice frame under 1/2 rate.

10. (Original) The method of claim 9, wherein the data RLP frame used for transforming the half rate voice frame or voice frame under 1/2 rate into the voice RLP frame is one of control frame, fragmented/assembled data frame, fill frame and idle frame.

11. (Original) The method of claim 9, wherein the voice RLP frame transformed from the half rate voice frame or voice frame under 1/2 rate is a half or 1/2 rate voice RLP frame, comprising 8 bits and 66 bits of voice frame information and 6 bits of control field information indicating which frame type is a voice RLP frame type.

12. (Original) The method of claim 9, wherein the voice RLP frame transformed from the half rate voice frame or voice frame under 1/2 rate is a quarter or 1/4 rate voice RLP frame comprising 8 bits and 26 bits of voice frame information and 6 bits of control field information indicating which frame type is a voice RLP frame type.

13. (Original) The method of claim 9, wherein the voice RLP frame transformed from the half rate voice frame or voice frame under 1/2 rate is an eighth or 1/8 rate voice RLP frame comprising 8 bits and 6 bits of voice frame information and 6 bits of control field information indicating which frame type is a voice RLP frame type.

14. (Currently Amended) A method for providing simultaneous voice and data (SVD) service in a mobile communication system, comprising:

performing SVD call processing that supports SVD service through SVD request signaling message exchange, when SVD service is requested after packet data call setup between a mobile terminal and a base station is completed; and

providing SVD service by transmitting and receiving voice and packet data simultaneously using at least one radio link protocol (RLP) ~~frame~~ frames after service negotiation is performed through the SVD request signaling message exchange, wherein providing the SVD service includes designating a voice RLP frame type using one or more bit combinations not designated in a frame type field of a data RLP frame, in order to transmit and receive the voice and packet data based on the at least one RLP frame.

15. (Currently Amended) The method of claim 14, further comprising implementing in a media access control (MAC) sub-layer a voice RLP module, which assembles voice frames into RLP frames such that voice and packet data can be transmitted and received based on the at least one ~~by means of RLP frame frames.~~

16. (Canceled)

17. (Currently Amended) A The method of claim 14 providing simultaneous voice and data (SVD) service in a mobile communication system, further comprising performing SVD call processing that supports SVD service through SVD request signaling message exchange, when SVD service is requested after packet data call setup between a mobile terminal and a base station is completed;

providing SVD service by transmitting and receiving voice and packet data simultaneously using at least one radio link protocol (RLP) frame after service negotiation is performed through the SVD request signaling message exchange, wherein providing the SVD service includes designating a voice RLP frame type using one or more bit combinations not designated in a control field of a data RLP frame, in order to transmit and receive the voice and packet data based on the at least one by means of RLP frame frames.

18. (Currently Amended) A The method of claim 14 providing simultaneous voice and data (SVD) service in a mobile communication system, comprising:

performing SVD call processing that supports SVD service through SVD request signaling message exchange, when SVD service is requested after packet data call setup between a mobile terminal and a base station is completed; and

providing SVD service by transmitting and receiving voice and packet data simultaneously using at least one radio link protocol (RLP) frame after service negotiation is performed through the SVD request signaling message exchange, wherein providing said SVD service comprises at least one of transforming a packet data frame into a data RLP frame or and transforming a voice frame into a voice RLP frame, by using a frame type field or a control field not used in the at least one data RLP frame.

19. (Original) The method of claim 18, wherein the voice frame is transformed into the voice RLP frame by using bit combinations not used in the frame type field of the data RLP frame, if the voice frame is full rate voice frame.

20. (Original) The method of claim 19, wherein the voice RLP frame transformed from the full rate voice frame comprises 168 bits of voice frame information, and 3 bits of frame type information indicating which frame type is the voice RLP frame type.

21. (Original) The method of claim 18, wherein the voice frame is transformed into the voice RLP frame by using bit combinations not used in the control field of the data RLP frame, if the voice frame is a half rate voice frame or a voice frame under 1/2 rate.

22. (Original) The method of claim 21, wherein the data RLP frame used for transforming the half rate voice frame or voice frame under 1/2 rate into the voice RLP frame is one of control frame, fragmented/assembled data frame, fill frame and idle frame.

23. (Original) The method of claim 21, wherein the voice RLP frame transformed from the half rate voice frame or voice frame under 1/2 rate is a half or 1/2 rate voice RLP frame comprising 8 bits and 66 bits of voice frame information and 6 bits of control field information indicating which frame type is a voice RLP frame type.

24. (Original) The method of claim 21, wherein the voice RLP frame transformed from the half rate voice frame or voice frame under 1/2 rate is a quarter or 1/4 rate voice RLP frame comprising 8 bits and 26 bits of voice frame information and 6 bits of control field information indicating which frame type is a voice RLP frame type.

25. (Original) The method of claim 21, wherein the voice RLP frame transformed from the half rate voice frame or voice frame under 1/2 rate is an eighth or 1/8 rate voice RLP frame comprising 8 bits and 6 bits of voice frame information and 6 bits of control field information indicating which frame type is a voice RLP frame type.

26. (Currently Amended) A mobile communication apparatus having a service interface comprising:

a voice radio link protocol (RLP) module; and

a data RLP module at a MAC sub-layer, wherein voice and packet data are simultaneously transmitted together in an RLP frame based on outputs of the voice RLP module and data RLP module, wherein at least one of a packet data frame is transformed into a data RLP frame or a voice frame is transformed into a voice RLP frame using a frame type field or a control field not used in the data RLP frame.

27. (Currently Amended) The apparatus of claim 26, wherein the data RLP module is configured to perform at least one of fragmentation of a packet data frame from the RLP frame ~~in an upper layer~~ or assembly of a packet data frame ~~in the upper layer~~ into the RLP frame.

28. (Currently Amended) The apparatus of claim 26, the voice RLP module is configured to perform at least one of fragmentation of a voice frame from the RLP frame ~~in an upper layer~~ or assembly of the voice frame ~~in an upper layer~~ into the RLP frame.

29. (Previously Presented) The apparatus of claim 26, wherein voice RLP frames are classified into full rate voice RLP frames, half rate voice RLP frames, quarter rate voice RLP frames and eighth rate voice RLP frames.

30. (Previously Presented) The apparatus of claim 26, wherein the apparatus is at least one of a mobile terminal and a base station.

31. (Previously Presented) The apparatus of claim 26, wherein the apparatus is a mobile communication system comprising at least one mobile terminal and at least one base station.

32. (New) A method for providing simultaneous voice and data (SVD) service in a mobile communication system, comprising:

performing SVD call processing that supports SVD service between mobile terminals and base stations by using a SVD service option; and

providing SVD service by transmitting and receiving voice and packet data simultaneously using at least one radio link protocol (RLP) frame after service negotiation is performed using the SVD service option, wherein providing SVD service includes transforming a voice frame into a voice RLP frame using a frame type field or a control field not used in the at least one data RLP frame.

33. (New) A mobile communication apparatus having a service interface comprising:

a voice radio link protocol (RLP) module; and

a data RLP module at a MAC sub-layer, wherein voice and packet data are simultaneously transmitted together in an RLP frame based on outputs of the voice RLP module and data RLP module, wherein a voice frame is transformed into a voice RLP frame using a frame type field or a control field not used in the data RLP frame.